

Mazak

OPTONICS CORP.



Super Turbo-X CHAMPION Laser Cutting Machine Tool

TABLE OF CONTENTS	PAGE #
HISTORY OF MAZAK	3
SYSTEM SUMMARY	4
STANDARD FEATURES	5
OPTIONAL FEATURES	9
MACHINE SPECIFICATIONS	13
RESONATOR SPECIFICATIONS	14
CONTROL SPECIFICATIONS	15
COMPLIANCE STATEMENT	16
INSTALLATION, UTILITIES & SIGN-OFF PROCEDURE	17
TRAINING	20
WARRANTY	21
TERMS OF SALES, TERMS & CONDITIONS	22

Due to our desire for continuous improvement, information provided in this quotation is subject to change without notice.

HISTORY OF MAZAK

Mazak Optonics Corporation established a presence in the United States in 1987 for the marketing, sales, service, and support of Mazak laser cutting systems in North America. Originally a joint venture, Yamazaki Mazak Corporation obtained full control of the operations in 2005. Mazak Optonics specializes solely in CO₂ laser cutting processes for a full range of metal working industries.

Our parent company, Yamazaki Mazak Corporation (Oguchi, Japan), is now the world's largest manufacturer of machine tools, including CNC turning center, machining centers, and laser cutting systems. Our company's commitment to technology, innovation, and quality has resulted in the worldwide manufacture and distribution of hundreds of types of high-productivity machines, cells and systems.

With the combined strengths of Mazak's engineering and manufacturing, as well as our commitment to continuous improvement, Mazak Optonics has become the leading supplier of CO₂ laser cutting systems in North America. For twenty years, we have been at the forefront of laser technology. During this period our approach has always been one of consultation and education for our customers to help them apply laser processing to their advantage and achieve world-class competitiveness.

The country's largest staff of laser application engineers and support personnel – dedicated solely to laser cutting – are located in our Elgin, IL National Headquarters and Technology Center, as well as in strategic locations throughout the US and Canada. These resources, combined with our powerful 2D and 3D laser systems, provides the availability of both time studies and application reviews for specific customer parts, which can be proven and demonstrated in our 50,000 sq. ft. Technology Center. In addition, the benefits of various stages of automation can be studied and justified in this time of scarce and costly manpower.



Our training headquarters is also located in the Elgin facility, with classroom sessions supplemented by “hands-on” experience on the technology center floor. Management, operator, programming, and safety training classes are developed and held at our state of the art facility on an ongoing basis. In addition, utilizing the latest communications technologies, classes are available regionally and locally.

Our Parts Department, with its large stock of inventory, is also housed in our headquarters in Elgin, IL, providing a central shipping location to best serve our customers.

On-site research and development using our own automated factories has emphasized more than any other single point in production, the necessity for a reliable, stable, and consistent process to maximize production throughput. Through nearly 100 years of manufacturing experience, Mazak has understood that this level of consistency out-produces any short-term speed advantages alone through the reduction of unnecessary human intervention. ***It is with this experience and history, Mazak Optonics Corporation is pleased to present:***

Super Turbo-X CHAMPION Laser Cutting Machine Tool



The **Super Turbo-X Champion** series offers a generous working envelope, with the capability to process a wide variety of material types and thicknesses. The Champion is built on a machine frame, which has been rigorously tested for external vibration dampening capabilities. Attention in the design phase has minimized the footprint of the machine, while still giving the operator ergonomic access to vital areas such as the work surface.

SPECIAL FEATURES

The New MAZATROL PREVIEW control brings the best features of a PC and NC control together while offering stability by using Linux as the operating platform. The MAZATROL PREVIEW control offers standard USB and LAN connectivity ports as well as large, PC type color viewing screen.

The CHAMPION has been designed as an automated building block to help remove unnecessary operator intervention and increase overall throughput by offering features to maintain consistency and reliability in the production process.

STANDARD FEATURES

Standard Features include:

- MAZATROL PREVIEW Control with 15" color monitor
- CO₂ continuous wave Laser Resonator
- Super Charged Beam Delivery System
- Non Contact Profiler
- Work Piece Clamps
- Class 4 Laser Shield
- Chiller Unit
- Powered conveyor system
- Single Tap Transformer, customer to specify line voltage
- E-Tower Software (e-Soft)
- Documentation Manuals
- Preparation of Dust Collection System
- Laser Starter Kit
- 7.5" Manual Moveable Focus Torch (Non Contact Profiler)

STANDARD FEATURES

MAZATROL PREVIEW Control Unit

A PC/NC base control with conversational graphical screen and two programming modes provided as standard. Extra large 15" TFT color display with 4-quadrant viewing. Configured with 3 standard USB ports and 1 RJ45 LAN connection for networking capabilities.

Graphical visualization of part nest, program, and cutting paths (to include torch up/down movements) is displayed for any program loaded into the controller through the 2D / 3D viewing windows.

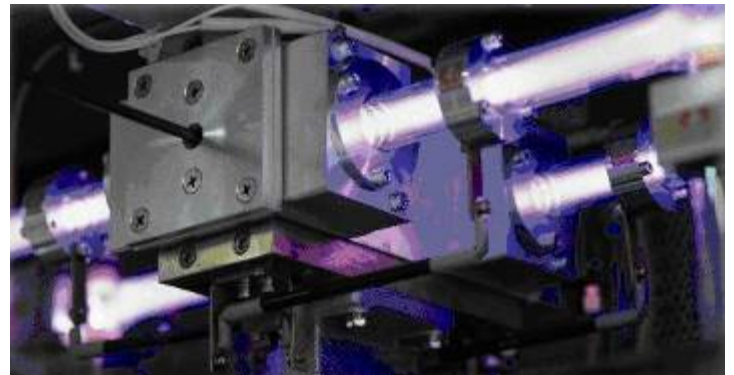
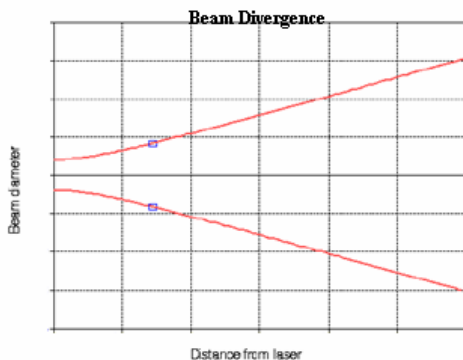


MAZATROL
PREVIEW

Laser Resonator

A laser resonator and delivery system with continuous rated output is standard and designed around the machine to maintain beam length and thereby minimizing beam divergence. This provides a consistent beam characteristic at the cutting torch to stabilize cutting conditions and eliminate operator "tweak" time of cutting parameters.

The laser resonator produces the laser beam with solid state technology for its ease of troubleshooting and serviceability. Because of the reliable build of the laser resonator, the service life of the resonator is not limited by service hours.



STANDARD FEATURES

Chiller Unit

All necessary chilling equipment is included as part of the standard package. Necessary hoses are included in standard lengths.

Super Charged Beam Delivery System

Mazak's patented beam delivery system provides a pivoting beam with minimal external optics, thus minimizing power consumption in the beam delivery system, so more power can be utilized at the torch.

The constant beam length ensures consistent cutting parameters regardless of the cutting head position throughout the sheet and table position. This eliminates operator "tweak" time to find cutting parameters in various cutting positions on the work table.



Non-Contact Profiler

The CHAMPION comes standard with a non-contact profiler, which maintains consistent nozzle stand-off from the material by use of an electrical capacitive sensing device.

Work Piece Clamps

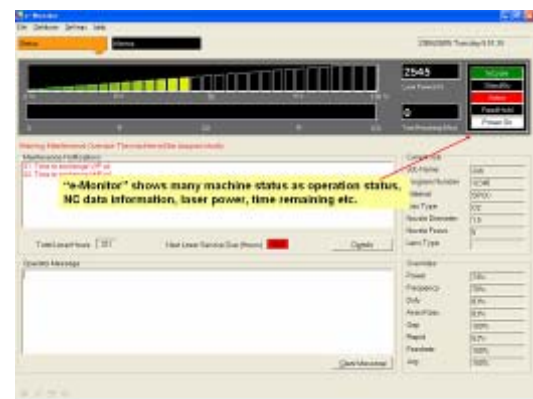
The work surface is configured with pneumatic work clamps.

Powered Conveyor System

A powered conveyor is provided to automatically gather slugs, scrap, and small parts from the machine after having fallen through the slats of the working surface.

E-Soft

The E-Soft Software package contains several modules to aid in keeping the Mazak Laser equipment productive. E-Soft offers a Production Scheduling module, a Diagnostic & Troubleshooting module, as well as electronic help documentation to aid in the preventative maintenance planning and cutting applications. E-Soft requires an external PC from the customer for which the production & machine information can be viewed.
(Windows Vista not yet supported)



STANDARD FEATURES

Documentation Manuals

All necessary documentation is included to use and maintain the system.

Operating & Maintenance Manual
Programming Manual
Electric Wiring Manual
Parts Manual



Preparation of Dust Collection System

Internal machine ductwork is provided exiting the machine with 200mm diameter exhaust port. Customer's external dust collection system is connected via this port.

Laser Starter Kit

Includes Torch tool change kit; Lens cleaning kit; Protection goggles; Alignment & Assembly tools

7.5" Manual Moveable Focus Torch (Non Contact Profiler)

One 7.5" torch is included with the machine.

It is recommended to have spare torches on hand near the machine so operator change over time can be minimized as much as possible.



OPTIONAL FEATURES

Auto Adjustable Focus Torch

Automatically adjust focus point position according to programmed set point in the program depending on thickness and type of material needed to cut, further enhancing the ability to cut one material to the next material without operator intervention. Without this option, the focus position is adjusted manually by the operator from turning a wheel on the manual torch assembly.

(Auto Adjustable Focus Torch shown here.)



3 Try Restart Function

The profiler will try to restart up to three (3) times during the cutting process after which an alarm will occur.

Auto Power Off

This option is utilized when the machine finishes production, or stops due to an alarm. In this occurrence, the machine waits a specified time before starting a shut-down routine to save energy cost of prolonged wait times before the operator can return to address the alarm.

Side Air Blow

The side air blow unit includes dual directed nozzles to provide anti-spatter compound and high pressure air to keep particles off of the material, lens, and nozzle during a high speed piercing operation.

Class 1 Cover

Surrounding Cover of the laser cutting to filter the CO₂ generated wave length and offer protection to operators and personnel in the area not wearing protective goggles and clothing from the reflected laser light during laser processing.

OPTIONAL FEATURES

Super High Pressure 3rd, 4th Gas Piping

High Pressure piping with 20kg capacity is optionally supplied for use on piercing and cutting heavier thicknesses. With this option, the 3rd pressure port is updated to 20kg and a 4th pressure piping port is installed also at 20kg.

- 1st port is designated Oxygen Only and is equipped with the necessary flash arrestors
- 2nd port is designated strictly for Compressed Air for use with the pneumatics as well as assist gas supply
- 3rd port is designed for an Inert Type Assist Gas of the customer's choice.
- 4th port is designed for an Inert Type Assist Gas of the customer's choice.

*With this Option All assist gas ports are fully programmable throughout their pressure range.

Additional Torches (Non Contact Profiler)

It is recommended to have spare torches on hand near the machine so operator change over time can be minimized as much as possible. Even duplicate torches of the same lens can allow maintenance on one torch while the other torch has been replaced in the machine for continued production. One 7.5" torch is included with the machine.

Available torches are:

- 3.75" Torch (only manual moveable focus torch available)
- 5" Torch
- 7.5" Torch



(Manual Moveable Focus Torch shown here)

Contact Material Sensor

Contact material sensor changes the torch configuration in cases where cutting of non-metallic materials is necessary. This option can not be both mounted with the Side Air Blow option.

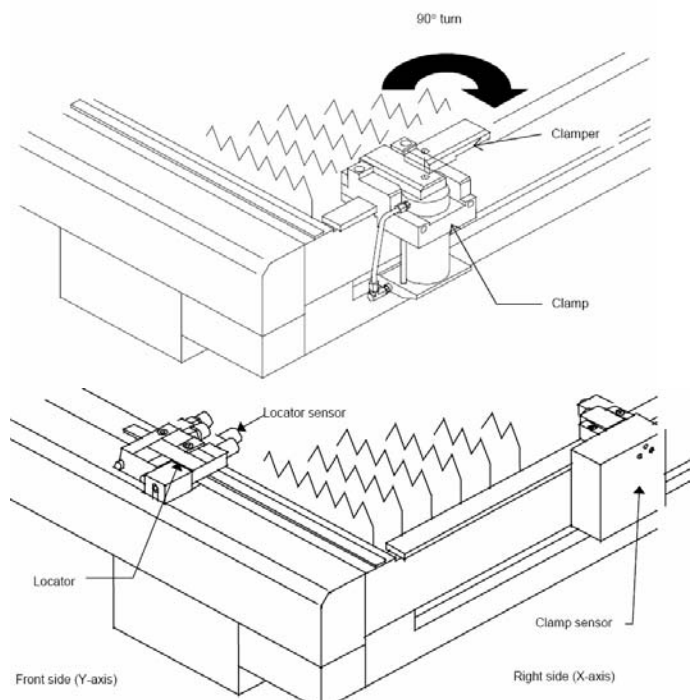
Automation Preparation

Automation Preparation is required to integrate the laser machine into the FMS system. Electrical devices and wiring are prepared inside the laser machine's control cabinet to enable digital input and output signal transfer to and from the FMS system.

Mechanical clamps that automatically rotate under air pressure are fitted instead of the manually operated clamps.

Sheet sensors are installed on the laser work surface to detect proper loading and positioning of the sheet onto the laser work surface.

The proper sheet positioning on the laser work surface is then communicated back to the FMS automatic handling device to continue the cycle.



OPTIONAL FEATURES

Mazak Smart System

Mazak Smart System is a PC based CAD/CAM system that enables the user to eliminate numerous, traditional, non-productive steps in sheet metal processing and go to actual production quicker than ever before.

2D and 3D CAD

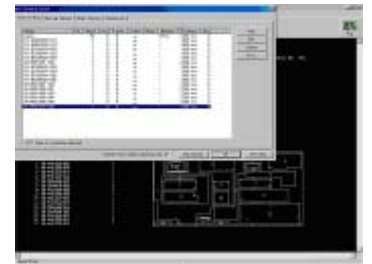
The powerful 2D CAD system incorporates compatibility with IGES, DXF, and DWG formats. 2D unfolding, 2D parametric function, and macro function are just some of the powerful utilities built into the system. The 3D CAD system includes functions such as solid modeling from 3D-view drawing, 3D parametric, and 3D data import.



(Windows Vista not currently supported)

Mazak Smart System Jr.

The PC based CAD/CAM system with all the features of the full Mazak Smart System with the exception of the 3D features. Only the 2D features are utilized in the Mazak Smart System Jr. This software provides nesting capabilities as well as DXF and DWG drawing import capability.



(Windows Vista not currently supported)

Mazak Clean Air Booth

Mazak Clean Air Booth is a torch maintenance enclosure for the purpose of cleaning lenses in a shielded environment. Enclosure is pressurized above atmospheric pressure to prevent contaminants from coming in contact with lenses and torch components utilizing a super filtered compressed air.



OPTIONAL FEATURES

Dust Collection System

Mazak offers a dust collection system manufactured specifically for laser cutting to remove all particles from the exhaust. Long lasting filters capture 99.9% of particles greater than .5um with a volume of 25 00 cubic feet per minute on the 4 by 8 and 3000 cubic feet per minute on the 5 by 10. The air exhausted from the dust collection unit back into the building is generally cleaner than ambient outside air.

Work Piece Lifter

Pneumatic ball transfers are installed into the work surface to assist in positioning the material.

Ball transfers in the table point downward during the cutting process to protect the bearing surface and rotate upward according to the operator's foot pedal.

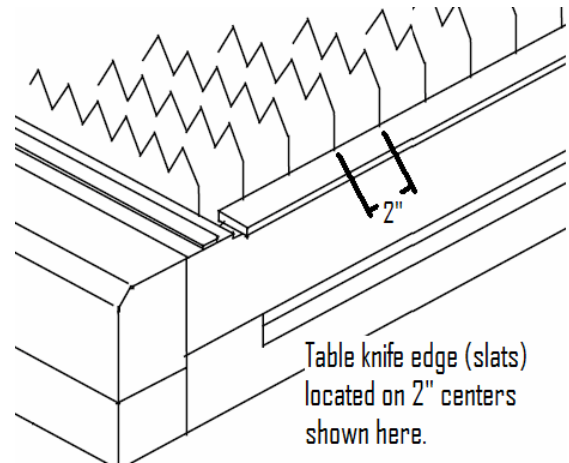


Table Slats (Knife Edge)

Table slats on the machine table are provided with 100mm (3.94") on center, with an available option of 50mm (1.97") on center slats.

The 50mm (1.97") on center option provides double the amount of Table Slats (Knife Edge) than in the standard.

Typically, the end user cuts additional slats upon commissioning of the machine.



MACHINE SPECIFICATIONS

Items		Specifications		Remarks
Model name		CHAMPION 48 1.3 kW	CHAMPION 510 1.3 kW	
Type		Hybrid Type		X-axis: Table motion Y-axis: Laser beam motion
Max. cutting size		1250 × 2500 mm (49.21" × 98.43")	1525 x 3050 mm (60.04" x 120.08")	22nn or 0.87" (2.5 kW) 25 mm or 0.98" (4 kW)
Work table height		900 mm (35.43")		From floor level
Max Load Weight		300 kg (661 lb)	440 kg (970 lb)	
Axis stroke (Effective stroke)	X-axis	2685 mm (105.71")	3235 mm (127.36")	
	Y-axis	1270 mm (50")	1545 mm (60.83")	
	Z-axis	100 mm (3.98")		
Rapid traverse rate		X, Y: 24 m/min (944.8 ipm)		
		Z: 25 m/min (394 ipm)		
Axial drive system		Servo Motor		
Positioning accuracy		X & Y: ±0.01/500 mm (0.0004"/20") Z: ±0.01/100 mm (0.0004"/4")		
Repeatability		X, Y, & Z: ±0.005 mm (0.0002")		
Cutting head		With the lens of 7.5" focal distance		Withstand pressure: 1 MPa (145 psi)
Z-axis profiler		Non-contact type and Z-axis follow type		
Worksheet clamps and locator		3 Clamps		
		1 Locator		
Worksheet lifter (option)		Lifting by 5 mm (0.20") by the rotation of FREEBEAR (ball transfer)		
Worksheet support method		By knife edges 100-mm (3.94") pitches		
Chip conveyor		Transfer speed 50 Hz: 2.2 m/min (86 ipm) 60 Hz: 2.6 m/min (102 ipm)		Incorporated in the machine
Work light		Integrated Light over work area		
Oscillation indicator lamps		The yellow signal light is lit when the laser high-voltage goes on. The red signal light is lit when the shutter opens.		
Assist-gas switch		Kind of gas: 3 gases (Oxygen, air, & 3rd gas) are selected. Pressure set at 0.05 to 0.6 MPa (7.25 to 87.02 psi) Pressure supplied: 0.8 MPa (116.03 psi)		Setting unit: 0.01 MPa (1.45 psi)
Numerical control of assist-gas pressure		Programming can set assist-gas pressure. Maximum pressure is 0.6 MPa (87.02 psi)		
Power Supply 3-phase AC		35.1 kva		50/60 Hz Voltage fluctuation within +/- 10% frequency fluctuation within +/- 1 Hz Rating
Weight		11,000 kg (24,250 lb.)	12,700 kg (27,998 lb.)	Chiller unit is included.

RESONATOR SPECIFICATIONS

Items	Specifications	Remarks
	1.3 kW	
Laser type	CO ₂ gas	Far-infrared ray
Wave length	10.6 μm	Invisible ray
Oscillation mode, configuration	Co-axial type, High-speed axial-flow type Integrated oscillator and power unit type	
Continuous rated output	1300 W	CW output
Output range	260 to 1300 W	CW output
Pulse mode	Normal pulses	
Pulse frequency	0 kHz to 1 kHz: 0 to 100 %	
Pulse duty	1 kHz to 2 kHz: 20 to 100 %	
Beam mode	TEM ₀₀ main constitute	
Beam diameter	Maximum φ20.5 mm (0.81")	0.3 m (11.82') from output mirror port
Beam divergence	2.0 mrad	Full angle
Output stability	±2.0 %/ per hours	Variable depending on rated output
Laser gas	Mixed gases of He, N ₂ , and CO ₂	
Mixture rate of laser gases	He : N ₂ : CO ₂ = 74.9% (balanced) : 23.4 ±1.0% : 1.7 ±0.2%	
Gas consumption amount	30 NL (1.06 ft ³) /H in continuous operation	
Beam shutter	Built-in mechanical shutter	

MAZATROL PREVIEW CONTROL SPECIFICATIONS

Items	Specifications
Name	MAZATROL PREVIEW
CPU	64 bits
Control method	MAZATROL PREVIEW control
Number of controlled axes	Simultaneous 3-axis control (X- (X1 or X2) , Y- and Z-axes) , Z-axis profiling control
Minimum unit	0.001 mm (0.0001")
Programming method	Intelligent method and EIA/ISO method
Input method	MDI key input Pointing device External keyboard and mouse (optional)
Input port	USB 1.1 × 3 ports - For program and data input/output - For keyboard connection - For mouse connection
Memory capacity	Hard-disk 20 GB (Program memory capacity: 10 GB)
Network port	LAN port (for communication with external unit)
Display	15" color liquid-crystal display (TFT type)
Servo system specification	Digital
Position detector	Encoder

COMPLIANCE STATEMENT

CONSTRUCTION AND U.S. FOOD AND DRUG ADMINISTRATION COMPLIANCE

This equipment and the electrical, hydraulic, pneumatic, and lubrication devices incorporated herein is designed and manufactured to Japanese Industrial Standards (J.I.S.) and in accordance with the Industrial Standards Organization (I.S.O.) codes. These standards are the equivalent of the U.S. A. National Machine Tool Builders Association (NMTBA) standards and meet the intent of Joint Industrial Council (J.I.C.), Occupational Safety Health and Act (O.S.H.A.), National Electric Council (N.E.C.) and the Federal Drug Administration (F.D.A.) prevailing at the time of manufacturing.

Please note: This machine may not meet all specific State or Local codes. You must notify us, prior to order placement, if special construction, electrical, hydraulic, or pneumatic compliance is required. We will quote your requirements at that time. We will not be responsible for the costs to modify this equipment, or losses due to delayed installation, if we are notified after the sale.

This product is registered with the Department of Health and Human Services (DHHS) and complies with laser system manufacturing guidelines as established by the Center for Devices and Radiological Health (C.D.R.H.) and the Control for Health and Safety Act of 1968 under DHHS Radiation Performance Standards and as specified under Food and Drug Administration (F.D.A.) standards 21CFR, Subchapter J, Section 1040.10 and 1040.11.

Additional User Protection, as required by O.S.H.A. and/or other local authorities, and/or American National Standards Institute (ANSI) X136.1-1993, should be implemented in the use of this product. If the user does not employ the protective housing supplied by MAZAK OPTONICS CORPORATION, the user should provide their own protection to meet any necessary safety requirements as noted above.

INSTALLATION

Once we have received all of the proper order documentation including the SOC, Down Payment, and customer purchase order (if any), the following list of events will take place:

1. Mazak Optonics Corporation will send out an Order Acknowledgement document.
2. A Pre-Installation Package will be mailed providing full documentation of the installation procedure and requirements. Included will be information on machine requirements, shipping information, training information, and financial documents, all of which are to be completed prior to shipment.
3. Training for both operator training and software training (if any) will be scheduled at this time.
4. Mazak Optonics Traffic Manager will call the purchaser regarding completion of letter of funds and security agreements. He will also confirm shipping requirements and arrangements.
5. Mazak Optonics Installation Supervisor will call the purchaser a few weeks prior to the scheduled installation to answer any questions regarding the installation and review the operations to be carried out by the user prior to installation.

Mazak Optonics Corporation will install the machine after delivery at the designated location. However, Mazak Optonics Corporation cannot accept responsibility for the following items:

1. Transportation from Port of Entry to customer's location
2. Transportation within Customer's building
3. Work included in "OPERATIONS TO BE CARRIED OUT BY USERS PRIOR TO INSTALLATION" (below)

OPERATIONS TO BE CARRIED OUT BY USERS PRIOR TO INSTALLATION

(A pre-installation package detailing these operations will be provided prior to delivery of the laser)

1. Foundation
Foundation, if necessary as determined by the user, should be laid in accordance with the foundation plan submitted to you before machine delivery. Anchor bolts are required to fit to the jack plate.
2. Power Supply (primary side)
Wiring is required between the main disconnect and the laser power transformer, and must be supplied by the purchaser.
3. Grounding
Grounding resistance: Less than 10 ohms, minimum 38mm square inch, single core, insulated
4. Dust Collection System
The laser system is provided with internal exhaust ducting leading to an externally mounted duct exit having a 7.87-inch diameter to which a dust collection system must be mounted. A dust collection system is required and can be purchased as an option with the machine or purchased separately. If an alternate source is selected, see the information provided in the pre-installation package to properly size the dust collection system.
5. Gas Plumbing
Purchase and installation of all necessary laser gas cylinders, assist gas cylinders, hoses, regulators, wrenches, and piping between the laser gas cylinders and assist gas supply to the laser machine.
6. Machine Placement and Rough Leveling
The customer is responsible for providing riggers for unloading the machine from the truck, uncrating the machine and accessories, placing the machine in position on the floor, and rough leveling the machine. Leveling plates are provided with the machine.

UTILITIES

1. Required: Three phase AC power supplied to Mazak's multi-tap transformer. Consult pre-installation manual.
2. Required: Compressed air supplied in the range 72-120 psi must be prepared through dryer and filter.
3. Required: Laser gas required for laser resonator. Single bottle premix is recommended with mixture specification as shown under the laser specifications page.
4. Required: Assist gases supplied to the machine along with appropriate regulators. Type and volume is application specific, please consult applications department or pre-installation manual for benchmark recommendations.
5. Required: Dust collection system. Type and volume required is application specific; please consult applications department or pre-installation manual for benchmark recommendations.

STANDARD INSTALLATION, COMPLETION AND SIGN-OFF

Once the machine has been delivered to your facility and the "OPERATIONS TO BE CARRIED OUT BY USERS" have been completed, engineering will arrive at your facility to complete the installation process. The following step by step process will then commence:

1. Inspect the machine and accessories for shipping damage.
2. Verify all manuals, documentation, software, and accessories are on site.
3. Remove all shipping brackets and clean the machine.
4. Inspect the incoming electrical and ground, and connect the machine to power.
5. Finish leveling the machine and verify gas connection and fluid levels.
6. Install optics.
7. Power up the machine and check lubrication.
8. Perform applicable mechanical and optical alignment checks and adjustments.
9. Perform resonator testing and adjustments.
10. Verify chiller operations.
11. Control system testing.
12. Options Installation.
13. Set all machine variables.
14. Assist in cutting test pieces per Mazak Optonics test criteria and specifications.
15. Provide safety training.
16. Provide basic operator maintenance training.
17. Perform any additional tasks as identified on the SOC as required for sign-off.

All of the above steps will be documented on an Installation Sign-off Form. The machine will be considered accepted on the satisfaction of these requirements. This form will then be signed and dated by the engineer followed by an authorized signatory from the customer. A copy of the signed form will be given to the customer for their records. The installation is then considered complete, releasing the machine for payment per the terms of the contract.

TRAINING

Operator training success depends on the individuals past experience and personal capability. Mazak Optonics Corporation will try to work with individual's strengths and improve any weaknesses. Ultimately, however, training success and a successful laser installation depends heavily on the capabilities of the person(s) selected by the user to operate the laser. The user is urged to closely monitor training and operation progress, and, if necessary, make personnel adjustments.

Based on this, Mazak Optonics Corporation will train your designated operator(s) and programmer(s) in the programming, operation, and maintenance of your machine. Please Note: Training at the customer's site is offered on a chargeable basis to be quoted upon request. In this case, an interruption free environment must be provided.

OPERATOR TRAINING

Basic operator training involves 4 days of time over a 5 day period to allow for travel and is included in the purchase price for two (2) individuals. Training is usually held at our facility in Elgin, Illinois, but may be held at our Gardena, California facility. Mazak Optonics Corporation maintains a full range of machines and control simulators in our training facility to ensure that the training will take place on equipment similar to the machinery purchased by the customer. Training will encompass an overall perspective rather than targeting only a few specific customer parts. The curriculum will include the following:

1. Basic control features and operation.
2. G-code and M-code description and function.
3. Basic G-code and M-code programming
4. Setting of focus
5. Cutting techniques for various materials and thicknesses
6. Lens Cleaning
7. Basic machine daily maintenance

The operator will be given a written test at the end of the training program to verify the full understanding of the required material.



SOFTWARE TRAINING

Software training involves between 2-1/2 to 4 days of time over 3 to 5 day period to allow for travel, depending on the software package purchased and is purchased separately. Prior to the start of the course, the computer to be used for programming will need to be shipped to our Elgin, Illinois facility to have the software installed. Your programmer will then use this computer in the training course. The course is classroom only, including instruction with hands-on examples covering all of the software features and functions.



MAINTENANCE TRAINING

Basic maintenance training takes place at customer site during installation.

WARRANTY

1. We warrant the machine described in this proposal against any defect in material and workmanship for a period of 1 year or 2000 hours from date of installation sign-off when ordered by you, installed in accordance with our recommendations, and operated under normal conditions. Whenever under this warranty it is necessary to replace parts, we will furnish such parts free of charge, F.O.B. your shop (Domestic) or F.O.B. port of entry (international), using transportation of our choice, provided you promptly send us notice of the defect and establish that the machine has been properly installed, maintained and operated within the limits rated in normal usage. Mazak Optonics Corporation will not be responsible for any import taxes or duties imposed by other governments or governmental agencies. During the service warranty period, the MOC Service Representative, with customer assistance, will replace complex assemblies, which have failed under warranty. Labor to assist and/or some necessary services are expected to be furnished by the customer at no cost to MOC or its distributor. In addition, all services and repair made to the machine while under warranty shall be performed by Mazak Optonics Corporation personnel or with the specific authorization of Mazak Optonics Corporation. Failure to adhere to this policy will result in the voiding of said warranty. SAID WARRANTY IN RESPECT OF REPLACEMENT OF DEFECTIVE PARTS AND ANY SUCH ADDITIONAL WARRANTY OR REPRESENTATION EXPRESSLY MADE A PART HEREOF ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OR PURPOSE. Where you are a distributor, financing company or similar entity acting for or on behalf of the initial user of the equipment, the warranty is transferable to the initial user only. In all other case the warranty is limited to you and is not transferable.
2. Exceptions to Warranty Coverage
 - Problems caused by operational errors or other careless handling of the machine, and/or,
 - Consumables, damage and loss to materials, work-in process, perishables, power loss, and/or,
 - Problems stemming from natural disasters, geological shifts, fire, theft, or improper use, including negligence, intentional damage or otherwise, without limitations.
 - As with all equipment, certain items wear and require occasional replacement. The customer is responsible for the costs to replace these parts which include for the laser machine: glassware, electrodes, ceramics, optics, seals, tubing, fluids, fuses, bulbs, cutting nozzle, and material supporting mechanism for the cutting table. If failure of a non-warranted part(s) was the direct results of a warranted part failure, the non-warranted damaged part(s) will be replaced at no charge.

TERMS OF SALE

FOB

Port of Entry, Duty and Customs Paid

PAYMENT TERMS – MACHINE AND AUTOMATION

10% down with Order, 80% prior to Shipment, 10% balance payable Net 0 days after installation completion and sign-off by the Customer, unless alternate terms are agreed to in writing by Mazak Optonics Corporation. Please review section 8 for definition of installation and sign-off. Payment in full will be due and payable if the installation is delayed more than 30 days after delivery of the equipment through no fault of the Mazak Optonics Corporation. Any amount due to Mazak Optonics Corporation which is not paid when due shall accrue interest to two (2) percent above the prime rate as declared by Citibank N.A. (New York) prevailing from time to time, or the maximum rate permitted by law, whichever is less.

PROPOSAL VALIDITY

The prices quoted in this proposal are valid for a period for 45-days from the date of this proposal and are then subject to possible change.

TAXES

Prices stated do not include local, state, or federal taxes. The amount of any sales, use, or similar tax applicable to the sale of the items herein or to the use of such goods by the Purchaser shall be paid by the Purchaser or in lieu thereof the Purchaser will provide Mazak Optonics Corporation with a tax exemption certificate acceptable to the taxing authorities.

TERMS AND CONDITIONS OF SALE

All proposals, quotations and orders for the sale of MAZAK OPTONICS CORPORATION ("MAZAK") products, or for the rendering of services by MAZAK, are subject to the following terms and conditions.

1. DEFINITIONS. For purposes hereof, (i) The term "BUYER" means the person or company purchasing as indicated on the front hereof or otherwise on the Agreement; (ii) The term "Products" means MAZAK machine tools or related equipment, parts or accessories or combinations or components thereof specified on the front hereof or otherwise; (iii) The term "Non-customized Products" shall mean those Products that MAZAK determines, in its sole discretion, to be of a standard type routinely manufactured by MAZAK and for which there is relatively continuous purchaser demand; (iv) The term "Customized Products" shall mean those Products that MAZAK determines, in its sole discretion, to be of a non-standard type specially manufactured for a specific number of orders and for which there is not relatively continuous purchaser demand; and (v) The term "Agreement" means these terms and conditions and those expressly referenced herein and (a) any MAZAK proposal, bid or similar document setting forth the prices of any Products and (b) any MAZAK Sales Order Confirmation, Acknowledgment or Installation Form provided by MAZAK and relating to the Products, and (c) any document evidencing or relating to the purchase of any Product.

2. ACCEPTANCE OF AGREEMENT. ACCEPTANCE BY BUYER OF BUYER'S ORDER OR BUYER'S ACCEPTANCE OF MAZAK'S PROPOSAL OR AGREEMENT, IS EXPRESSLY LIMITED TO AND CONDITIONED UPON BUYER'S ACCEPTANCE OF AND ASSENT TO THESE TERMS AND CONDITIONS AND THOSE REFERRED TO HEREIN. ANY ADDITIONAL, INCONSISTENT OR DIFFERENT TERMS AND CONDITIONS CONTAINED IN BUYER'S PURCHASE ORDER OR OTHER DOCUMENTS SUBMITTED BY BUYER TO MAZAK AT ANY TIME, WHETHER BEFORE OR AFTER THE DATE HEREOF, ARE HEREBY EXPRESSLY REJECTED BY MAZAK. BUYER ACKNOWLEDGES THAT, NOTWITHSTANDING ANYTHING TO THE CONTRARY CONTAINED IN ITS PURCHASE ORDER OR OTHER DOCUMENTS, RECEIPT AND ACCEPTANCE BY BUYER OF MAZAK PRODUCTS SHALL CONSTITUTE ACCEPTANCE BY BUYER OF THESE TERMS AND CONDITIONS. ALL ORDERS ARE SUBJECT TO ACCEPTANCE BY MAZAK AT ITS OFFICE AT 2725 GALVIN COURT, ELGIN, IL. MAZAK SALES PERSONNEL AND DISTRIBUTORS ARE NOT AUTHORIZED TO ACCEPT ORDERS ON BEHALF OF MAZAK.

3. PRICES; TAXES; DELIVERY. All prices are stated in USD. Prices are subject to change by MAZAK due to increases in costs or otherwise without notice to BUYER. Prices do not include taxes, which are separately itemized. BUYER shall pay all excise, sales, occupation, use or similar taxes, levies, governmental charges or surcharges applicable to the Products, or the sale or use thereof, whether now in effect or hereafter imposed. Unless otherwise mutually agreed upon in writing, all Products shall be shipped F.O.B. point of origin, except that (i) Products shipped from outside the continental United States shall be shipped F.O.B. Port of Entry and "Port of entry" shall mean any port at the borders of the continental United States at which a customs-house or revenue office is established for the execution of U.S. laws imposing duties on vessels and imported goods. Where the scheduled delivery of Products is delayed by BUYER or by reason of any contingency referred to in Section 16 hereof, MAZAK may deliver such Products by moving them to storage and BUYER shall be liable for any storage charges or price increases in effect at the date of shipment to BUYER. Should the carrier designated by BUYER fail to pick up the Products within two (2) days after being given notice, MAZAK reserves the right to select and make shipment by an alternate carrier and charge BUYER for such shipment.

4. RISK OF LOSS; TITLE; SECURITY INTEREST. Notwithstanding Section 3 hereof, all risk of loss or damage shall pass to BUYER, and delivery shall be deemed to be completed, upon delivery of the Products to the carrier, its agent or designee, or upon moving the Products into storage, whichever shall occur first, at the point of shipment. MAZAK reserves, and BUYER hereby expressly grants to MAZAK, a purchase money security interest in the Products until the purchase price has been fully paid. BUYER agrees to execute, and hereby appoints MAZAK as its attorney-in-fact to execute on BUYER's behalf, any documents requested by MAZAK which are necessary for attachment and perfection of its security interest. If BUYER defaults, MAZAK will have all the rights of a secured creditor under the Uniform Commercial Code as enacted in the State of Illinois. If any Products are placed on any real property subject to any mortgage, lien or encumbrance, BUYER shall ensure that the Products shall be expressly excluded from the terms of such mortgage, lien or encumbrance.

5. SHIPMENT AND PRODUCTION ESTIMATES. The shipping date is estimated upon the basis of immediate receipt by MAZAK of BUYER's acceptance of the Agreement or of MAZAK's acceptance of BUYER's purchase order and all information required to be furnished by BUYER. MAZAK shall, in good faith, endeavor to ship by the estimated shipping date but reserves the right to vary such date free of any liability to BUYER, notwithstanding any commitment or representation to the contrary. Production data, where given, is estimated only based upon the Products being maintained and operated under normal working conditions with competent, trained operators and maintenance personnel and upon MAZAK's analysis and understanding of the limits of accuracy, machinability and stability of materials, amount of material to be removed, suitability of designated locating points and handling facilities provided. PRODUCTION ESTIMATES ARE APPROXIMATIONS AND ARE NOT GUARANTEED OR WARRANTED unless otherwise expressly provided in the Agreement. Unless expressly provided by this Agreement, MAZAK makes no warranty or representation regarding part accuracies, which are the responsibility of BUYER.

6. PHOTOGRAPHS. Photographs, illustrations, brochures, manuals or advertising materials represent in general the Products offered, but are not binding in detail. Only written detailed specifications shall be binding.

7. WEIGHTS AND SPECIFICATIONS. All weights, measurements and powers given by MAZAK are estimates stated as correctly as practicable. Any minor deviations shall not invalidate the sale of the Products or entitle BUYER to any price adjustment. Only the written detailed specifications shall be binding.

8. INSTALLATION AND ACCEPTANCE. Installation by MAZAK shall be deemed to have occurred upon the execution of the Mazak Installation Form by a Mazak Service Engineer. Except as otherwise set forth in this Section 8 or in MAZAK's Installation Form, MAZAK shall have no obligation to provide any erection or installation services in respect of the Products. BUYER shall be solely responsible for timely site preparation for any erection, installation, warranty or other services that MAZAK may provide. Unless BUYER provides MAZAK with written notice, within forty-five (45) days after the date of shipment, of (i) any incomplete item with respect to the order of the Products or (ii) any defect in the Products, then BUYER's acceptance of the Products shall be deemed to have occurred on the earlier of BUYER's written acceptance to MAZAK or on the forty-fifth (45th) day after the date of shipment. In the case of proper and timely written notice to MAZAK from BUYER, then BUYER's acceptance shall be deemed to have occurred on the date MAZAK reasonably corrects such incomplete order or defect. Notwithstanding the foregoing, any assignment of the Products by Buyer to a bank or other financing company for the purpose of an equipment lease or other financing transaction shall be deemed to be an acceptance of the Products.

9. CANCELLATION BY MAZAK; REMEDIES FOR BREACH. MAZAK may, by written notice to BUYER and without any liability, cancel BUYER's order if BUYER (i) fails to perform any of the terms and conditions hereof and does not cure such failure within a period of ten (10) days after receipt of written notice from MAZAK specifying such failure, provided, that, no such cure period shall apply to BUYER's failure to pay in a timely manner; (ii) in MAZAK's opinion, has not established or maintained credit to meet promptly the payment terms of MAZAK's Standard Terms of Payment or has defaulted on the payment terms of any other transaction with MAZAK; (iii) becomes insolvent, makes an assignment in favor of creditors, or becomes subject to any bankruptcy, dissolution or similar proceedings; or (iv) is merged into, or all or a substantial part of its assets are sold to, another company. Upon any such cancellation, BUYER shall be liable to MAZAK for a cancellation charge in accordance with Section 10 below. As a nonexclusive alternative to cancellation, MAZAK may, for any reason referenced in subsections (i)-(iv) of this Section 9, without any liability, (a) suspend any of its obligations hereunder (including MAZAK's warranty obligations), (b) physically render the Product unusable and/or (c) exercise any and all of its rights as a secured creditor under the Uniform Commercial Code.

10. CANCELLATION BY BUYER. (a) Non-Customized Products. BUYER may, by prior written notice to MAZAK, (i) if within thirty (30) days of MAZAK's acceptance of BUYER's order, cancel an order for Non-Customized Products, subject to a cancellation charge to be paid to MAZAK equal to ten per cent (10%) of the purchase price of such Products or (ii) if more than thirty (30) days has elapsed from the date of MAZAK's acceptance of BUYER's order, cancel an order for Non-Customized Products, subject to a cancellation charge to be paid to MAZAK equal to fifteen per cent (15%) of the purchase price of such Products plus payment of any costs incurred by MAZAK in performing its obligations hereunder. (b) Customized Products. BUYER shall not cancel any order with MAZAK for Customized Products (or any order for Non-Customized Products which includes any customized or specialized modifications, tooling, options, parts or accessories or added services or runoff that MAZAK has agreed to provide) without MAZAK's prior written consent. If MAZAK authorizes the cancellation of any such order, then BUYER shall be liable to MAZAK as follows: (i) for cancellation of an order for such Products for which MAZAK's production is within thirty (30) days of the scheduled completion date, MAZAK shall complete such production and hold such Products for BUYER's disposition, with BUYER liable to MAZAK for full payment within thirty (30) days after completion, or (ii) for cancellation of an order for such Products for which MAZAK's production is not within thirty (30) days of the scheduled completion date, BUYER shall pay MAZAK (A) the actual costs and overhead expenses, determined in accordance with generally accepted accounting principles, for work in progress, order entry expenses, engineering process expenses and costs of materials and supplies procured or for which definite commitments have been made by MAZAK in connection with BUYER's order and (B) fifteen per cent (15%) of the contract price of the order. Unless otherwise agreed by MAZAK in writing, under no circumstances shall BUYER have the right to delay shipment, delivery or acceptance of Products hereunder.

11. WARRANTY REPAIR/REPLACEMENT REMEDY. MAZAK warrants that any Product is free from defects in material or workmanship at the time of tender of delivery. For a period of one (1) year from the date of Original Start-Up of such Product, MAZAK will repair or, if determined appropriate by MAZAK, replace any Product which is (i) determined by MAZAK to be defective and (ii) is returned within said one (1) year period to MAZAK at its facility at 2725 Galvin Court, Elgin, IL, or such other place as MAZAK may designate in writing, with all transportation charges prepaid by BUYER. For purposes hereof, the term "Original Start-Up" means the date a Product is placed under power or two (2) months from the date of delivery, whichever is earlier. MAZAK's repair/replacement costs are limited only to repair or replacement (at MAZAK's option) at MAZAK's designated location. Return of any repaired or replaced Products to BUYER shall be at BUYER's risk and expense. This repair/replacement remedy also is conditioned upon BUYER furnishing satisfactory evidence that the Product alleged to be defective has been properly maintained and correctly operated under normal conditions with competent supervision and within the operating limits for which such Product is offered and sold. This remedy shall not apply to any Product that has been subjected to misuse, abuse, neglect, or improper storage, handling, maintenance or operation. BUYER shall be solely responsible for proper training of all persons operating, maintaining or programming the Product. Should the services of a field service technician be required, MAZAK shall make every reasonable effort to send a technician as soon as practicable. Without liability, MAZAK shall have the right to withhold repair or replacement service on any Product in the event that BUYER's accounts with MAZAK are not current. **EXCEPT AS EXPRESSLY STATED IN THIS SECTION 11, MAZAK MAKES NO WARRANTY, EXPRESS OR IMPLIED, WHETHER OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE OR OTHERWISE, WITH RESPECT TO ANY PRODUCT OR LABOR FURNISHED IN CONNECTION WITH THE SALE, DELIVERY OR SERVICING OF ANY PRODUCT. GOODS AND MATERIALS NOT MANUFACTURED BY MAZAK CARRY THE STANDARD GUARANTEE OF THE MANUFACTURER THEREOF, IF ANY, AND MAZAK SHALL NOT BE RESPONSIBLE FOR ANY DEFECTIVE PART THEREOF.**

12. **LIMIT OF MAZAK'S LIABILITY; CUSTOMER'S REMEDY. IN NO EVENT SHALL MAZAK BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, INCLUDING WITHOUT LIMITATION DAMAGES FOR INJURY TO PERSON OR PROPERTY, LOST PROFITS OR REVENUE, LOST SALES OR LOSS OF USE OF ANY PRODUCT. BUYER'S SOLE AND EXCLUSIVE REMEDY AGAINST MAZAK AND ITS DISTRIBUTORS OR SALES REPRESENTATIVES SHALL BE THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS AS PROVIDED HEREIN. MAZAK'S LIABILITY ON ANY CLAIM, WHETHER IN CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, FOR ANY LOSS OR DAMAGE ARISING OUT OF OR IN CONNECTION WITH BUYER'S ORDER, SHALL IN NO CASE EXCEED THE PURCHASE PRICE OF THE ORDER.** The sole purpose of the stipulated exclusive remedy provided for herein shall be to provide BUYER with repair or replacement of defective Products in the manner provided for herein. Such remedy shall not be deemed to have failed of its essential purpose so long as MAZAK is willing and able to repair or replace defective Products in the prescribed manner. Any claim or action by BUYER arising out of or in connection with this Agreement or the Product, whether in contract, tort or otherwise, must be commenced within one (1) year after the cause of action has accrued or be barred.

13. NO RIGHT OF SET OFF. BUYER has no right to deduct or set off from the purchase price of the Product any damages or costs incurred by BUYER as a result of any action on the part of MAZAK or otherwise.

14. PROPRIETARY INFORMATION. This Agreement and all notes, brochures, technical information concerning processes, devices, machines, marketing strategies and techniques, catalogs, listings, sales forecasts, agreements, know-how, designs, drawings, specifications, data sheets, memoranda, correspondence or special purpose manufacturing prototypes or samples ("Proprietary Information") supplied to BUYER by MAZAK are, and shall remain, the property of MAZAK and may be covered by one or more MAZAK patents, patent applications or copyrights. BUYER shall not at anytime disclose or make available to any person, firm or corporation, other than MAZAK, Proprietary Information or use such information for any purpose other than the purposes for which supplied hereunder, and shall provide effective security measures to prevent unauthorized persons from obtaining Proprietary Information. All technical, industrial and commercial information and material that BUYER discloses heretofore and hereafter to MAZAK is on a nonconfidential basis. MAZAK grants no rights to BUYER under any MAZAK patent, design patent, copyright, trademark or know-how, except as may be necessary to fulfill MAZAK's obligations under BUYER's order.

15. INDEMNIFICATION. BUYER agrees to indemnify, defend and hold MAZAK harmless from and against all judgments, decrees and costs (including attorneys' fees) resulting from BUYER's use and/or resale of the goods delivered hereunder. Further, without limiting the generality of the foregoing, if the goods delivered hereunder are to be prepared for manufacture according to BUYER's specifications, BUYER shall indemnify, defend and hold MAZAK harmless against any claims or liability for patent or trademark infringement on account of such preparation or manufacture.

16. FORCE MAJEURE. Except with respect to the payment of monies due hereunder and BUYER's obligations under Sections 14 and 15 hereof, neither party hereto shall be responsible for failure to perform hereunder or for any loss or damage due to causes beyond its reasonable control, including but not limited to acts of God, fires, civil disobedience, war, acts of terrorism, riots, strikes, work stoppages, floods, water/elements, changes in governmental requirements or inability to secure equipment, raw materials or transport. Notice to this effect ("Notice of Force Majeure") shall be given at once to the other party. Performance shall be resumed as soon as practicable after the cessation of the cause of a delay.

17. ENTIRE AGREEMENT. The entire agreement between MAZAK and BUYER with respect to BUYER's order is embodied solely within the Agreement, which supersedes all prior agreements, understandings, representations or warranties, whether oral or written, between MAZAK and BUYER relating to such order. No statement, recommendation or assistance made or offered by MAZAK through its representatives in connection with suitability, capacity, performance or compliance with customer's specification of the Products sold shall be or constitute a waiver by MAZAK of any provision hereof. No statements subsequent to the acceptance of the Agreement and these terms and conditions shall be binding upon MAZAK, nor shall the Agreement or such terms or conditions be amended or modified, unless consented to in writing by a duly authorized officer of MAZAK in a document referencing these terms and conditions. These terms and conditions of sale shall remain effective as between MAZAK and BUYER, regardless of any arrangement or agreement for financing of BUYER's purchase of the Product, whether such financing is provided by MAZAK, any subsidiary of MAZAK or any entity related to MAZAK.

18. ATTORNEYS FEES. In the event of any litigation or collection action arising out of BUYER's purchase of Products, MAZAK shall be entitled to reimbursement from BUYER for its actual reasonable attorney's fees and costs.

19. NON-WAIVER. Failure by MAZAK to enforce any rights under or to insist upon strict performance of any provision in the Agreement shall not constitute a waiver of any breach or a waiver of such provision, irrespective of the length of time for which such failure continues.

20. SURVIVAL; SEVERABILITY; ASSIGNMENT. Notwithstanding any expiration or cancellation of BUYER's order, BUYER shall remain obligated under all those provisions of the Agreement which expressly or by their nature extend beyond and survive such expiration or cancellation. If any provision or any portion of any provision in the Agreement shall be held to be void or unenforceable, the remaining provisions hereof and the remaining portions of any provisions of the Agreement held void or unenforceable in part shall continue in full force and effect. The Agreement shall not be assigned, subcontracted, or delegated, in whole or in part, without MAZAK's prior written consent.

21. GOVERNING LAW; FORUM; MAZAK'S ARBITRATION OPTION. The Agreement, and BUYER's purchase of Products, shall be governed by and interpreted in accordance with the laws of the state of Illinois, U.S.A. In no event do the parties intend that the United Nations convention for the international sale of goods apply to any dispute arising out of, or related to, this agreement or the relationship governing the parties hereto. ANY LEGAL ACTION OR PROCEEDING ARISING FROM OR IN CONNECTION WITH THIS AGREEMENT OR THE PRODUCT SHALL BE BROUGHT EXCLUSIVELY IN THE COURTS OF THE STATE OF ILLINOIS OR IN THE U.S. DISTRICT COURT, ROCKFORD, IL. BUYER hereby irrevocably consents to service of process out of said State of Illinois or U.S. Court in any such action or proceeding by mailing copies thereof by U.S. mail to BUYER or any other method of service permitted by such courts. AT THE SOLE OPTION OF MAZAK, ANY DISPUTE ARISING OUT OF OR IN CONNECTION WITH THIS AGREEMENT OR THE PRODUCT MAY BE REFERRED TO BINDING ARBITRATION, WHICH SHALL BE ADMINISTERED BY, AND CONDUCTED IN ACCORDANCE WITH THE COMMERCIAL RULES OF, THE AMERICAN ARBITRATION ASSOCIATION, WITH THE HEARING THEREIN TO BE HELD IN THE STATE OF ILLINOIS.

22. EXPORT CONTROL LAW. BUYER shall not sell, consign, give, lease or otherwise transfer the Products or any interest therein nor in any manner disclose or make the Products available to any person or entity in violation of (i) the Export Administration Act, 50 U.S.C. App. §§ 2401-2420, as amended, (ii) the Nuclear Non-Proliferation Act of 1978, 22 U.S.C. §§ 3201-3282 and 42 U.S.C. §§ 2011-2160(a), as amended, (iii) export control regulations of the Bureau of Export Administration of the U.S. Department of Commerce, 15 C.F.R. Parts 768-799 or (iv) export control regulations of the Office of Foreign Assets Control, U.S. Department of the Treasury, 31 C.F.R. Parts 500-580.